03050110-030

(Gills Creek)

General Description

Watershed 03050110-030 is located in Richland County and consists primarily of ***Gills Creek*** and its tributaries. The watershed occupies 47,681 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Alpin-Lakeland-Pelion-Norfolk series. The erodibility of the soil (K) averages 0.15 and the slope of the terrain averages 5%, with a range of 0-15%. Land use/land cover in the watershed includes: 39.3% forested land, 39.1% urban land, 10.2% agricultural land, 5.7% forested wetland (swamp), 3.7% barren land, 1.9% water, and 0.1% nonforested wetland (marsh).

Gills Creek flows through the northeastern section of the City of Columbia and drains into the Congaree River. Gills Creek originates near Sesquicentennial State Park and accepts the drainage of Bynum Creek (Rose Creek), Rowell Creek, and Mack Creek before flowing through Rockyford Lake and Forest Lake. Jackson Creek also originates near Sesquicentennial State Park and flows through Sesquicentennial Pond and Windsor Lake before accepting the drainage of Little Jackson Creek (Lightwood Knot Branch). Jackson Creek then flows through Carys Lakes (Arcadia Lakes) and Spring Lake to join Gills Creek in Forest Lake. Downstream of Forest Lake, Gills Creek accepts the drainage of Eightmile Branch and Pen Branch (Orphanage Branch) before flowing through Lake Katherine. Wildcat Creek (Semmes Lake, Fork Creek, Upper Legion Lake, Lower Legion Lake) drains into Gills Creek downstream of Lake Katherine. Gills Creek and its associated wetlands drain into the Congaree River. Several oxbow lakes, including Alligator Lake, drain into Gills Creek near the river. There are a total of 89.5 stream miles and 943.3 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
C-048	S/W	FW	WINDSOR LAKE SPILLWAY ON WINDSOR LAKE BLVD
C-068	P/W	FW	FOREST LAKE AT DAM
C-001	P/W	FW	GILLS CREEK AT BRIDGE ON US 76 (GARNERS FERRY ROAD)
C-017	P/INT	FW	GILLS CREEK AT SC 48 (BLUFF ROAD)

Gills Creek - There are two SCDHEC monitoring sites along Gills Creek. Both sites are within a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems and considered natural, not standards violations. At the upstream site ***(C-001)***, aquatic life uses are fully supported, but there is a significant decreasing trend in dissolved oxygen concentration. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, total dissolved solids, total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. The significant increasing trend in pH suggests changing conditions for this stream. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

At the downstream site ***(C-017)***, aquatic life uses are partially supported due to dissolved oxygen concentration excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. In sediment, P,P'DDD was detected in 1997 sample, and P,P'DDD and P,P'DDE (metabolites of DDT) were detected in the 1997, 1999, and 2000 samples. Although the use of DDT was banned in 1973, it is very persistent in the environment. Fluoranthene, butylbenzylphthalate, and di-N-butylphthalate were detected in 1997. Di-N-butylphthalate was again measured in 1999, as were benzoic acid and dieldrin. High concentrations of nickel and zinc were measured in the sediments in 1998, and a very high concentration of cadmium was detected in 2000. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, total suspended solids, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters. The significant decreasing trend in pH suggests changing conditions for this stream. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

Sesquicentennial Pond - The pond was applied with aquatic herbicide in 1996 to improve public access to the lake. These efforts have been successful and further treatments have not been necessary.

Windsor Lake (C-048) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are partially supported due to dissolved oxygen concentration and pH excursions, compounded by significant decreasing trends in both parameters. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported.

Forest Lake (C-068) – Aquatic life and recreational uses are fully supported. This lake is located in a blackwater drainage system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems and were considered natural, not standards violations. A significant decreasing trend in turbidity suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes some lakes within this watershed (see advisory p.111).

Natural Swimming Areas

FACILITY NAME	***PERMIT #***
RECEIVING STREAM	***STATUS***
SESQUICENTENIAL STATE PARK	40-N16
SESQUICENTENIAL STATE PARK LAKE	ACTIVE

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-046	GB	MIDDENDORF	SPRING VALLEY

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
GILLS CREEK CENTRAL PRODUCTS CO. DBA IPG PIPE #: 001-007 FLOW: M/R	SCG250180 MINOR INDUSTRIAL
GILLS CREEK US ARMY/FT. JACKSON PIPE #: 007 FLOW: M/R	SC0003786 MINOR INDUSTRIAL
LAKE KATHERINE US ARMY/FT. JACKSON PIPE #: 006 FLOW: M/R	SC0003786 MINOR INDUSTRIAL
JACKSON CREEK AMPHENOL CORP. PIPE #: 001 FLOW: M/R	SC0046264 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
ANCHOR CONTINENTAL, INC. INDUSTRIAL	IWP-200 ---
ANCHOR CONTINENTAL, INC. INDUSTRIAL	IWP-108 CLOSED
ANCHOR CONTINENTAL, INC. INDUSTRIAL	IWP-137 CLOSED
BALDWIN ROAD C&D DUMP C&D LANDFILL	--- CLOSED
CITY OF COLUMBIA C&D LANDFILL C&D LANDFILL	401002-1201 ---
CITY OF COLUMBIA TRANSFER STATION DOMESTIC	401002-6001 ---

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*

THE JORDAN COMPANY	0545-79
CONGAREE SAND PIT	SAND

Growth Potential

There is a high potential for continued growth in this urban watershed, which contains a portion of the City of Columbia. Although primarily residential, there are a substantial number of commercial and industrial areas. Almost the entire watershed, which runs through the City of Columbia, has water and sewer readily available. Growth is also projected along the newly connected I-77 beltway around the city.